



\*\*FILE\*\*ID\*\*PREFIX

B 10

PPPPPPPP	RRRRRRRR	EEEEEEEEE	FFFFFFFFF		XX	XX
PPPPPPPP	RRRRRRRR	EEEEEEEEE	FFFFFFFFF		XX	XX
PP PP	RR RR	EE	FF		XX	XX
PP PP	RR RR	EE	FF		XX	XX
PP PP	RR RR	EE	FF		XX	XX
PP PP	RR RR	EE	FF		XX	XX
PPPPPPPP	RRRRRRRR	EEEEEEEEE	FFFFFFFFF		XX	XX
PPPPPPPP	RRRRRRRR	EEEEEEEEE	FFFFFFFFF		XX	XX
PP RR RR	EE	FF		XX	XX	
PP RR RR	EE	FF		XX	XX	
PP RR RR	EE	FF		XX	XX	
PP RR RR	EE	FF		XX	XX	
PP RR RR	EE	FF		XX	XX	....
PP RR RR	EE	FF		XX	XX	....
PP RR RR	EE	FF		XX	XX	....
PP RR RR	EE	FF		XX	XX	....

RRRRRRRR	EEEEEEEEE	QQQQQQ
RRRRRRRR	EEEEEEEEE	QQQQQQ
RR RR	EE	QQ QQ
RR RR	EE	QQ QQ
RR RR	EE	QQ QQ
RR RR	EE	QQ QQ
RRRRRRRR	EEEEEEEEE	QQ QQ
RRRRRRRR	EEEEEEEEE	QQ QQ
RR RR	EE	QQ QQ QQ
RR RR	EE	QQ QQ QQ
RR RR	EE	QQ QQ QQ
RR RR	EE	QQ QQ QQ
RR RR	EEEEEEEEE	QQQQ QQ
RR RR	EEEEEEEEE	QQQQ QQ

Version: 'V04-000'

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MODULE: PREFIX.REQ

FACILITY: LINKER

ABSTRACT:

REQUIRE FILE TO DEFINE LOCALLY SOME  
INTERESTING GENERAL SYMBOLS, STRUCTURES AND MACROS

HISTORY:

AUTHOR: T.J. PORTER 15-DEC-76

MODIFICATIONS:

NO.	DATE	PROGRAMMER	PURPOSE
01	19-OCT-77	K.D. MORSE	REMOVED CSTRING AND SH\$SEQUENCE MACROS.
02	19-OCT-77	K.D. MORSE	REMOVED TRUE AND FALSE DEFINITIONS.

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FUNCTIONAL DESCRIPTION:  
THIS REQUIRE FILE DEFINES SOME GENERAL, LOCAL VALUES AND MACROS  
WHICH CANNOT OR ARE BEST NOT DEFINED GLOBALLY.  
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## MACRO

SHORT = UNSIGNED(6)%,  
BYTLIT = UNSIGNED(8)%,  
WORDLIT = UNSIGNED(16)%.  
| SHORT LITERAL ATTRIBUTE  
| UNSIGNED BYTE ATTRIBUTE  
| UNSIGNED WORD ATTRIBUTE

## MACRO THAT DESCRIBES A STRING

STRINGDESC(STRING) = %CHARCOUNT(STRING), UPLIT(%ASCII STRING)%,

## MACRO TO GENERATE A QUADWORD STRING DESCRIPTOR

DESCRIPTOR(STRING) = VECTOR[2] INITIAL(STRINGDESC(STRING))%;

## MACRO TO GENERATE A COUNTED STRING AS A BYTE VECTOR

CSTRING(STRING) = UPLIT BYTE(%CHARCOUNT(STRING),STRING)%,

## MACRO TO ALLOCATE AN N-CHARACTER STORAGE VECTOR

CH\$SEQUENCE(N) = VECTOR[CH\$ALLOCATION(N)]%;

## A SET OF MACROS FOR GENERATING STRUCTURE REFERENCE MACROS

## COMPILETIME

XXXXXXSIZE = 0;

## MACRO

BYTEBLOCKFIELDS(BLKNAM)[] =  
MACRO %NAME(%STRING(BLKNAM),'\$C\_START') =  
0,0,0,%QUOTE%;  
XXXXXXXXBBF(BLKNAM,0,%REMAINING);  
GLOBAL LITERAL %NAME(%STRING(BLKNAM),'\$C\_SIZE') = XXXXXXSIZE : WEAK%,  
  
XXXXXXXXBBF( BLKNAM, OFF, NAM, BYTS)[] =  
MACRO %NAME( %STRING(BLKNAM), '\$', %STRING(NAM)) = OFF, 0, MIN(BYTS\*8, 32), 0 %QUOTE %;  
%ASSIGN(XXXXXXSIZE,OFF+BYTS)  
XXXXXXXXBBF( BLKNAM, OFF+BYTS, %REMAINING)%;

## LITERAL

SYM\$C\_MAXLNG = 15,  
CONTROL\_REGION = %X'40000000',  
SYSTEM\_SPACE = %X'80000000',  
MAX\_ADDRESS = %X'C0000000';  
| MAXIMUM LENGTH OF STRINGS  
| START OF CONTROL REGION  
| START OF SYSTEM SPACE  
| MAXIMUM VIRTUAL ADDRESS

## STRUCTURE

QUADVECTOR[I:N] =  
[ N \* 8 ]  
| A VECTOR OF N QUADWORDS

(QUADVECTOR + 8\*I);

THE FOLLOWING MACROS GENERATE ACCESSING MACROS FOR BLOCK STRUCTURES WHICH HAVE FIELDS OF BYTE, WORD OR LONG WIDTH.

COMPILETIME

YYYYYYYSIZE = 0;

! VARIABLE WHICH IS RESULTANT BLOCK LENGTH

MACRO

GENBLOCKFIELDS(BLKNAME)[] =

CALLING SEQUENCE:

GENBLOCKFIELDS(BLKNAME,  
FLDNAM1,FLDWIDTH1,  
FLDNAM2,FLDWIDTH2,  
.....  
ETC,  
FLDNAMN,FLDWIDTHN);

WHERE:

FLDNAMI = THE NAME OF FIELD I IN THE BLOCK  
FLDWIDTHI = WIDTH IN BYTES OF FIELD I

THE MACRO GENERATES FIELD ACCESS MACROS OF THE FORM  
BLKNAM\$X FLDNAM WHERE X IS B, W, L FOR FIELD WIDTHS OF  
1, 2, 4 BYTES RESPECTIVELY.

IN ADDITION A MACRO OF FORM INIT\_BlkNAME IS  
GENERATED FOR STATIC INITIALIZATION OF BLOCK. FOR EXAMPLE  
INITIAL (INIT\_BlkNAME(VALUE1,VALUE2,...,VALUEN))

GENERATE A MACRO TO REFERENCE THE START OF THE BLOCK

MACRO %NAME(%STRING(BLKNAME),'\$C\_START') =  
0,0,0,%QUOTE%;

GENERATE THE ACCESSING MACROS FOR ALL THE FIELDS OF THE BLOCK

YYYYYYYBBF(BLKNAME,0,%REMAINING);

DEFINE A GLOBAL LITERAL (FOR LINK TIME ERROR DETECTION) WHOSE  
VALUE IS NUMBER OF BYTES IN BLOCK

GLOBAL LITERAL %NAME(%STRING(BLKNAME),'\$C\_SIZE') = YYYYYYYSIZE : WEAK;

NOW DEFINE A MACRO THAT CAN BE USED TO STATICALLY INITIALIZE  
ALL THE FIELDS OF THIS BLOCK  
MACRO NAME IS INIT\_BlkNAME

YYYYCRE8INIMACRO(%NAME('INIT\_'),%STRING(BLKNAME)), (ZZZBBF(%REMAINING)), (XXXBBF(%REMAINING)))%,

AUXILIARY MACROS:-

YYYYCRE8INIMACRO(NAME, FORMAL, BODY) =  
MACRO NAME FORMAL =%REMOVE BODY%QUOTE%%,

```
! ZZBBF[FLDNAM, FLDWIDTH] = %NAME(%STRING(FLDNAM),'_FML')%,  
! XXXBBF[FLDNAM, FLDWIDTH] = %IF FLDWIDTH EQL 1 %THEN BYTE  
! %ELSE %IF FLDWIDTH EQL 2 %THEN WORD  
! %ELSE LONG  
! %FI  
! %FI (%NAME(%STRING(FLDNAM),'_FML'))%,  
! YYYYFLDPREFIX(WIDTH) = %IF WIDTH EQL 1  
! %THEN B  
! %ELSE %IF WIDTH EQL 2  
! %THEN W  
! %ELSE L  
! %FI  
! %FI%,  
! YYYYYYYYBBF( BLKNAM, OFF, NAM, BYTS)[] =  
MACRO %NAME( %STRING(BLKNAM), '$', %STRING(YYYYFLDPREFIX(BYTS)), '_', %STRING(NAM)) =  
OFF, 0, MIN(BYTS*8, 32), 0 %QUOTE%;  
%ASSIGN(YYYYYYYSIZE,OFF+BYTS)  
YYYYYYYBBF( BLKNAM, OFF+BYTS, %REMAINING)%:
```

0299 AH-BT13A-SE  
VAX/VMS V4.0

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